日本古生物学會
報告・紀事

Transactions and Proceedings
# of the
Palaeontological Society of Japan

昭和14年　　第16號
1939　　No. 16

〔地質學雜誌　第46卷　第552-555號　拔刷〕
[Reprinted from Jour. Geol. Soc. Japan, Vol. 46, Nos. 552-555.]

日本古生物學會
Palaeontological Society of Japan

目 次 CONTENTS

報 告 Transactions

91. Hisakatsu YABE and Toshio SUGIYAMA, Discovery of *Hexaphyllia* in the Lower Carboniferous of Japan (Published September 20) 85
本邦下部石炭紀層産の *Hexaphyllia* に就いて（摘要）（9 月 20 日發表）..矢部長克・杉山敏郎 88
92. Ichiro HAYASAKA, On the Identity of *Echigophyllum* YABE and HAYASAKA (1924) and *Amygdalophyllum* DUN and BENSON (1920): with the Description of *Amygdalophyllum giganteum* YABE and HAYASAKA (Published October 20) 89
Echigophyllum と *Amygdalophyllum* とが同一屬に屬する事に就いて 附 *Amygdalophyllum giganteum* YABE and HAYASAKA の記載（摘要）（10 月 20 日發表）..........早坂一郎 91
93. *Vicarya* の或る標本に就て（10 月 20 日發表）..........池邊展生 92
Nobuo IKEBE, On Certain Specimens of *Vicarya* (Résumé) (Published October 20) 95
94. Teiichi KOBAYASHI, Supplementary Notes on the Agnostida (Published November 20) 97
アグノスタス類研究補遺（摘要）（11 月 20 日發表）..........小林貞一 100
95. Fuyuji TAKAI, Three Different Kinds of Odontoma found in the Molars of Asiatic Fossil Elephants (Published November 20) 101
亞細亞産化石象に見られる 3 種の歯牙腫に就て（摘要）（11 月 20 日發表）.....高井冬二 102
96. Tuneteru OINOMIKADO, Miocene Mollusca from the Neighbourhood of Cucurrupi, Department of Chocó, Colombia (Published December 20) 103
Colombia 共和國 Chocó 州 Cucurrupi 附近産中新世貝化石（摘要）（12 月 20 日發表）..........大炊御門經輝 115

記 事 **Proceedings** 117

91. *Discovery of Hexaphyllia in the Lower Carboniferous of Japan*

By

Hisakatsu YABE and Toshio SUGIYAMA

(Read and received June 17th, 1939)

n 1867, P.M. DUNCAN[1] described several new species of *Battersbya* and *Hete-*
llia, two genera in which the solitary corallum bear certain features recalling
Iexacoralla more than the Tetracoralla. He distinguished two groups in the
genus, one for relatively larger forms with many septa and the other for
er forms with only six septa. Of the eight species described by him of *Hetero-*
ia, five species were of the first group and three species of the second; those
first group are, *H. grandis* M'COY, *H. ornata* M'COY, *H. granulata* DUNCAN,
gulata DUNCAN and *H. sedgwicki* DUNCAN, while to the second group were re-
H. m'coyi DUNCAN, *H. lyelli* DUNCAN and *H. mirabilis* DUNCAN. All of these
s are from the Lower Carboniferous deposits of Scotland.

n 1904, A. STUCKENBERG[2] established a new genus *Hexaphyllia* on *H. prismatica*
ENBERG from the Lower Carboniferous limestone of the village Ploskya on the
ank of the river Pronja, Central Russia; its original description runs as
s.

> as Genus *Hexaphyllia* umfasst Einzelkorallen mit gestreckten, prismatischen, bisweilen
> lindrischen Zellen, dicken Wänden und völlig regelmässig gestellten Verticalsepten,
> der Mitte zusammenstossen, so das sie im horizontalen Querschnitt die Gestalt eines
> kigen Sternes haben."

esides the genotype, he included in the same genus two of DUNCAN's species,
phyllia m'coyi and *H. lyelli*. Subsequently, W. I. ROBINSON[3] added another
of DUNCAN to STUCKENBERG's genus, namely, *Heterophyllia mirabilis*; thus
nus *Hexaphyllia* of STUCKENBERG covers wholly DUNCAN's group of *Hetero-*

P.M. DUNCAN: On the Genera *Heterophyllia*, *Battersbya*, *Palaeocyclus*, and *Asterosmilia*: the
y of their Species, and their Position in the Classification of the Sclerodermic Zoantharia.
ans. R. Soc., London, Vol. 157, pp 643–651, 1867.

A. STUCKENBERG: Des unteren Kohlenkalkes von Central-Russland. Mém. Com. Géol., nov.
V, 14, p. 72, 1904.

W.I. ROBINSON: The Relationship of the Tetracoralla to the Hexacoralla. Trans. Conn. Acad.,
, Vol. 21, pp. 178–181, 1917.

phyllia with smaller corallum and bearing only six septa.

Very recently a few specimens ef small corals with slender solitary corallum heve been collected by Mr. A. Suzuki, a student of our Institute of Geology and Palaeontology, Tôhoku Imperial University, Sendai, from a dark gray Lower Carboniferous limestone developed in Hikoroiti-mura, Kesen-gun, Iwate-ken (Kitakami Mountainland). They are in good preservation, and found to comprise two different types of corals, one without doubt is referable to *Hexaphyllia*, and the other to *Heterophyllia*. Detail examination of them in thin sections under the microscope showed that there are three forms of the former and one of the latter; except one species of *Hexaphyllia*, which is now specifically indeterminable owing to the insufficient material, all the others are believed to represent new species. In the present paper the species of the genus *Hexaphyllia* only are taken into consideration; they are:

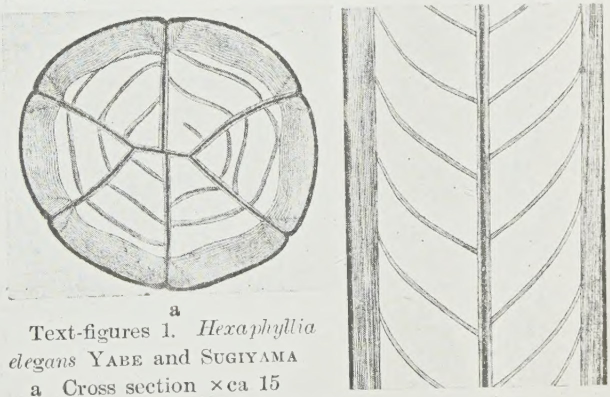
Hexaphyllia japonica, sp. nov.
Hexaphyllia elegans, sp. nov.
Hexaphyllia sp. indet.

By this new find the geographical distribution of the genus is extended to eastern Asia, and particularly interesting is the fact that this genus in association with *Heterophyllia* occurs in the Lower Carboniferous deposits in Japan as in abroad.

Hexaphyllia elegans, sp. nov.

Pl. 26 (13), Figs. 1–3; Text-figs. 1 a, b.

Corallum long, cylindrical, nearly straight, slightly attenuated posteriorly, over 35 mm long, up to 3.5 mm broad, calice not preserved; surface apparently smooth, faintly furrowed longitudinally in position corresponding to the outer borders of septa; where primordial wall is deprived, transversely or somewhat obliquely corrugated, and impressed by six longitudinal furrows which are wider and deeper than those exposed on the outer surface of wall; wall consists of two parts, thin primordial wall and thick stereozone lining the inner surface of the former, both together measuring up to 0.4 mm in thickness; stereozone of wall under high magnification composed of numerous thin concentric layers which appear in transverse section of corallum to bend abruptly along the septa toword the primordial wall. Septa six, all in eqnal thickness; two opposite septa meeting at the centre of corallum and lying on the median plane; these and four others arranged in subequal intervals, each of the latter forming Y in each semicircle, when seen in transverse section, and coalescing into one lamella shortly before reaching the centre. Tabulae distinct, eight counted in 4 mm, arranged opposite or subopposite on either side of the axial line in



Text-figures 1. *Hexaphyllia elegans* Yabe and Sugiyama
a Cross section ×ca 15
b Longitudinal section ×ca15

median longitudinal section, concave upward and always rather abruptly ascending along the wall.

Remarks: Of the four species hitherto recorded of the genus *Hexaphyllia prismatica* STUCKENBERG and *H. mirabilis* DUNCAN are nearest to the Japanese form now under consideration as to the form of corallum; while *prismatica* differs from it by septa in different arrangement, and has in common with it costal grooves, *mirabilis* is provided with septa arranged as in the Japanese form and differs from it by having six prominent longitudinal ridges which bear distinct rootlets or spine-like processes.

Locality: Pass between Higuti-zawa in Kawauti and Onimaru in Ômori, both in Hikoroiti-mura, Kesen-gun, Iwate-ken. Reg. No.[1] 63279.

Geological horizon: Lower Carboniferous Onimaru series; found together with the two other species of the same genus mentioned below and in association with several species of *Lithostrotion* and *Lonsdaleia, Kueichouphyllum* ? and *Syringopora,* as well as *Ozawainella struvii* (v. MÖLLER), *Ehdothyra parva* v. MÖLLER, *Cribrostomum texturiforme* v. MÖLLER and *Cribrospira panderi* v. MÖLLER. Foraminifera are identified by Mr. S. HANZAWA.

Hexaphyllum japonica, sp. nov.

Pl. 26 (13), Figs. 1 b, c, 4, 5.

Closely resembles the preceding species, but differes from it by 1) more or less arcuate corallum which is more rapidly attenuated posteriorly, by 2) the stereozone of wall somewhat thicker, and most markedly by 3) less numerous and distant tabulae, arranged alternately on either side of the axial line in median longitudinal section and disposed more or less horizontally rather than being concave in the main part and making very sharp upward bend close to the inner surface of wall. Corallum over 20 mm long and up to 3.5 mm broad.

Localities: Pass between Higuti-zawa in Kawauti and Onimaru in Ômori, both in Hikoroiti-mura, Kesen-gun, Iwate-ken. Reg. Nos. 63271 and 63272. Yabazawa in Sakamoto-zawa, Hikoroiti-mura, Kesen-gun, Iwate-ken. Reg. No. 63280.

Geological horizon: Same with that of the preceding species.

Hexaphyllia sp. nov. ?

Pl, 26 (13), Fig. 6.

There are several transverse sections of corallum which are distinguished from hose of the preceding two species by hexagonal outline due to six prominent idges in position corresponding to the outer border of septa. Among the preiously recorded species, *H. lyelli* has the most similar aspect, and moreover agrees vith it in the arrangement of septa. The two, however, seem to be distinguished

---

[1] Register number of the specimens stored in the Institute of the Geology and Palaeontology, ôhoku Imperial University, Sendai.

from each other by different density of tabulae, which are crowded in the foreign species and distant in the Japanese form ; in this feature, the latter more approaches *H. japonica* than *H. elegans.*

The specific determination of the present form is for a while postponed, due to the lacking of the material sufficent for the purpose it may possibly be a new species.

Locality : Pass between Higuti-zawa and Onimaru, cited above.

Geological horizon : As before.

Explanation of Plate 26 (13).

Hexaphyllia elegans, sp. nov.

Fig. 1. Weathered surface (la) ; in association with *Hexaphyllia japonica*, sp., nov. (1 b and 1 c) ; ×ca. 3.
Fig. 2. Cross section of the same specimen ; ×20.
Fig. 3. Longitudinal section of the same specimen ; ×20.

Hexaphyllia japonica, sp. nov.

Fig. 4. Cross section ; ×8.
Fig. 5. Longitudinal section of the same specimen ; ×8.

Hexaphyllia, sp. nov. ?

Fig. 6. Cross section ; ×20.

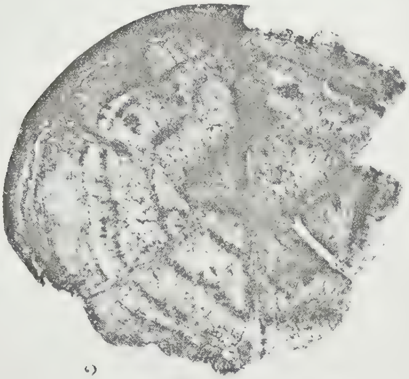
本邦下部石炭紀層產の *Hexaphyllia* に就いて （摘要）

矢部長克・杉山敏郎

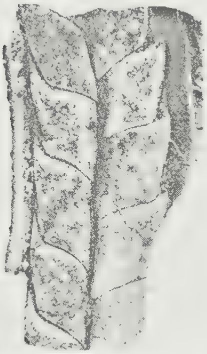
東北帝國大學理學部地質學古生物學々生鈴木陽雄氏によつ岩手縣氣仙郡日頃市村地方に發達する下部石炭紀石灰岩から興味ある珊瑚が最近採集された。この標本を薄片にして檢鏡した結果從來歐洲の下部石炭紀のみに知られてゐる *Hexaphyllia* 及び *Heterophyllia* に同定出來る下の4種が識別された。

Hexaphyllia elegans, sp. nov.	*Hexaphyllia*, sp. nov ?
Hexaphyllia japonica, sp. nov.	*Heterophyllia kitakamiensis*, sp. nov.

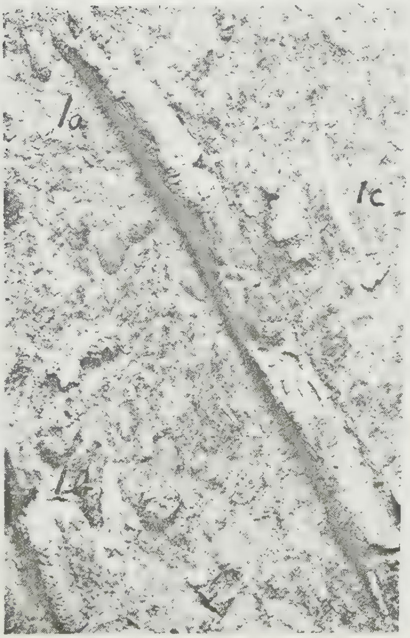
比處では *Hexayhpllia* 3 種を記載したが何れも內部構造が良く保存されて四射珊瑚とは全く別個の構造を示てゐる。斯如く歐洲の下部石炭紀のみに知られたる珊瑚が本邦下部石炭紀石灰岩に產することは注意すべき事柄である。



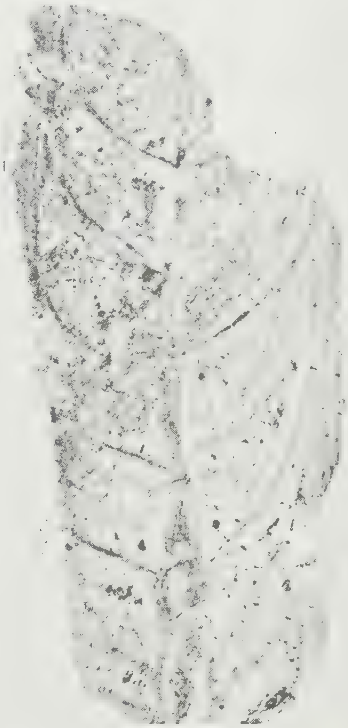
2



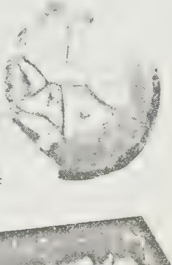
5



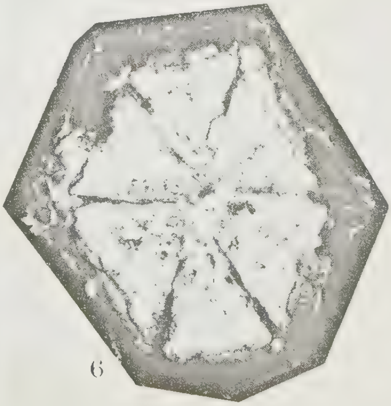
1



3



4



6

92. *On the Identity of Echigophyllum* YABE *and* HAYASAKA (*1924*) *and Amygdalophyllum Dun and Benson* (*1920*)*: with the Description of Amygdalophyllum giganteum* YABE *and* HAYASAKA

By

Ichiro HAYASAKA

(Received May 16th; read June 17th, 1939)

It was until about twenty-five years ago that YABE and myself had been indulged in the study of the East Asiatic Palaeozoic corals. A part of the results was published in a preliminary form in the Journal of the Geological Society of Tôkyô (now Japan) in 1915.¹⁾ This series of descriptions did not accompany any figure, though a number of nicely printed plates of figures of these and many other fossil corals had been prepared to be published in the Science Reports of the Tôhoku Imperial University. On certain reason, however, the work was discontinued, although figures of the fossils from China, with the descriptions of some of them, were published in the "Geographical Research in China, 1911–1916," Vol. III.²⁾

Of the many Japanese Palaeozoic corals studied up to that time, *Echigophyllum* and a few other forms that occurred in the anthracolithic limestone (Ômi-limestone) of the western part of Niigata Prefecture, were mentioned in my work on the fauna of the said limestone.³⁾ Of *Echigophyllum*, however, the description was not given, because the publication of the intended monograph on the Palaeozoic corals had been expected to follow.

The publication of my paper on the anthracolithic limestone fauna of Ômi-mura, after having been delayed by the great Kwantô earthquake of 1923, took place in 1924. Soon after, I was presented by Stanley SMITH a paper on some Australian Palaeozoic corals written together with W. N. BENSON.⁴⁾ In the moment I read about *Amygdalophyllum* in that paper, I was impressed with its very close

---

1) YABE and HAYASAKA: Palaeozoic Corals from Japan, Korea and China, pp. 1–83.

2) YABE and HAYASAKA: Palaeontology of Southern China. Tôkyô Geographical Society, 1920.

3) HAYASAKA: On the Fauna of the Anthrac. Limest., etc. Sci. Rep., Tôhoku Imp. Univ. 2nd. ser. (Geology), VIII, 1. 1924.

4) BENSON and SMITH: On some Rugose Corals from the Burindi Series of N. S. W., etc. Q. J. G. S. lxxix, pt. 2. 1923.

affinity with our *Echigophyllum.* Thus, in the paper of BENSON and SMITH as well as in the private copy of my own paper, notes were incerted that these two genera are very closely allied, and should be studied in comparison.

The coral work has since been suspended for a long time. During the period of suspension of about twenty years descriptions of *Echigophyllum* and some other species in the manuscripts seem to have been lost. Meanwhile, the Australian genus *Amygdalophyllum* has become more and more firmly established by the subsequent studies of Dorothy HILL in 1934[1] and 1937.[2] In the latter of her papers she anticipated the identity of the Japanese genus under consideration with *Amygdalophyllum* (p. 146). Having re-examined the old material in Sendai this year, I have become convinced of the synonymy of the two genera. I think it my duty to give a description of the hitherto only incompletely known genus *Echigophyllum* in order to show that it is generically inseparable from the Australian genus *Amygdalophyllum* which has the priority in consequence.

Although the original paper of DUN and BENSON has not been accessible to me, the general features of the genus *Amygdalophyllum* is quite clear from the diagnosis given by SMITH and HILL. "The distinguishing character of the genus is the remarkably large solid columella."[3]

Amygdalophyllum giganteum (YABE and HAYASAKA)

1924. *Echigophyllum giganteum* YABE and HAYASAKA (MS), HAYASAKA:—On the Anthrac. Limest. Ômi-mura, etc., p. 20, Pl. IV, figs. 5, 6, 7 (on the plate these where mis-numbered 9, 10 and 11, respectively).

Diagnosis: Large *Amygdalophyllum* with a great number of septa that are estimated to be about 130 or thereabout in a large corallum, there being two series or cycles of different lengths in alternation. The longer series reach the columella, though they are not always confluent with it. Columella is large and more or less elliptical or oval in cross section, but is not so elongate as in *A. etheridgei* and other Australian species. Longer septa are thicker. There is a tendency toward diphymorphism in some individuals.

Description: No complete corallum is at hand, but judging from the shape of the fragmentary individuals examined, it has the ordinary horn-shaped form. The corallum is enclosed with an epitheca which is made of dense lamellar, concentric layers.

The largest specimen measures about 4 cm in diameter, in which the thick columella is about 1 cm across. The longer septa are appreciably thicker than the alternating shorter ones that are about 3/4 as long as the longer ones: they tend to be dilated in the tabulate zone occupying the area between the columella and the peripheral dissepimental zone: septa are slightly flexuous in general.

Inter-septal spaces are filled with minute, vesicular dissepiments, of which characteristic features are observed in longitudinal sections. They are more or less rounded, with the convexity faced upwards and inwards, 7–8 being counted in a longitudinal distance of 5 mm.

Tabulae are represented by small, arched plates piled up irregularly: the tabulate zone is far narrower than the dissepimental zone which occupies nearly one half the radius of

---

[1] HILL: The Low. Carb. Corals of Australia. Proc. Roy. Soc. Queensl. xlv, 12. 1934.

[2] HILL: Type Specimens of Palaeozoic Corals from N. S. W., etc. Geol. Mag., lxxiv, 874. 1937

[3] SMITH (in BENSON and SMITH): p. 161.

the corallum.

Columella is composed of very minute, dense, somewhat arched cells closely piled up as is observed in longitudinal section : the cells are arranged more or less radially and concentrically in cross section. There is, in the center of the columella, a medial plate seen in cross section : it seems to lie in the direction of the cardinal and the counter septa as is suggested by one of the cross sections (see fig. 5 of HAYASAKA's paper). Other thin radial elements, possibly rudimentary septal ends, seem to take part in the formation of the characteristic columella.

Of the 6 Australian species hitherto made known, the present species most strikingly resembles *A. etheridgei* the only difference recognized being the more rounded cross section of the columella in the Japanese species, while it is elliptical and cuspidate in the Australian. From the other Australian species the present one can as easily be distinguished as *A. etheridgie* can be.

Geological Age: *Amygdalophyllum* seems to be exclusively Visean in Australia. Of *A. giganteum* the place of origin in the limestone gorge of the Ômigawa is toward the basal part of the exposure of the limestone. The faunule from this part of the limestone seems to consist of many Visean forms and a few Tournaisian species.[1]

In conclusion, hearty thanks are offered to Prof. YABE, to whom I owe the privilege of re-examining the material in the Geological Institute of the Tôhoku Imperial University.

Echigophyllum と *Amygdalophyllum* とが同一屬に屬する事に就いて
附 *Amygdalophyllum giganteum* YABE and HAYASAKA の記載

（摘　要）

早坂一郎

新潟縣青海石灰岩中に産した *Echigophyllum giganteum* YABE and HAYASAKA が，Australia の Visean に普通な屬 *Amygdalophyllum* に屬せしめらるべきことを説き，今日までも未發表であつたこの種の記載を試みた。

---

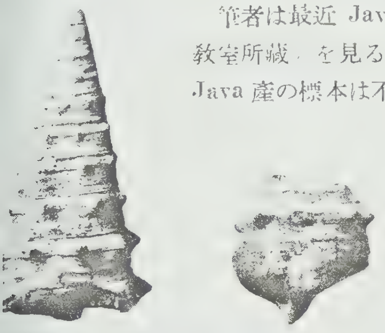
[1] HAYASAKA : Op. cit., 1924.

93. *Vicarya* の或る標本に就て

池邊展生

昭和 14 年 6 月 17 日講演並に受理）

本邦産 *Vicarya* は昭和 8 年竹山俊雄學士[1]によつて *Vicarya callosa* JENKINS, *Vicarya ver- uili yokoyamai* TAKEYAMA の 2 種に分けられ，最近矢部•畑井兩氏[2]は *Vicarya* に關する詳細な研究を發表された。又，金原均二學士[3]の御意見もある。



1 2

Vicarya callosa JENKINS (Topotype)
Tjidjenoek Valley, Java
g. 1. 62×31 mm Fig. 2. 31×28mm

筆者は最近 Java 産の *Vicarya callosa* JENKINS の topotype（東大地質學教室所藏）を見ることが出來，之を植月統産の *V. callosa* と比較して見た。Java 産の標本は不完全ではあるが特徴は良く保存されて居る。subsutural band 上の tubercles は nepionic whorl より既に存在しその數は 8–9 であつて，此の點本邦産種と變りはない。しかし各々の spinous tubercle は spire の axis に直角に突出し，その上下兩面は對稱的で共に傾斜して居る。一方邦産種にあつては多くは上面は水平で下面は傾斜し tubercle は axis から斜上に向つて突き出て居る。これは矢部•畑井兩氏によつて指摘された所であつて，この點を重視して兩氏は邦産種を亞種 *japonica* として *callosa* から分離された。此點以外には邦産標本と Java 標本との間には何等の區別を認める事は出來なかつた。比較に使用した標本は岡山米郡稲岡南村誕生寺産（地質調査所所藏）で，其他竹山學士•矢部教授及畑井學士の圖版と[illegible]した。この點のみの差で果して亞種として分つ必要があるかどうかは多少の疑問もあるが，兎に明瞭に指摘出來る差異があるから，しばらく邦産種は *V. callosa japonica* YABE and HATAI とぶことにしやう。

美濃の月吉層産の *Vicarya* は竹山氏により *V. verneuili* (d'ARCHIAC) の亞種 *yokoyamai* TAKEAMA とされ，矢部•畑井兩氏は之を callosa の亞種 *yokoyamai* とされ，別に *V. callosa martini* ぶ新亞種を記載された。竹山氏によれば，*V. callosa* と *V. verneuili* との重要な差異は *callosa* あつては subsutural band の tubercle の數は總ての whorl を通じほとんど constant であり，*rneuili* にあつては nepionic worls では tubercle はなく多數の granules を有し，adult にて此等の granules の一部が spinous tubercles と變ると云ふ。此の點は矢部•畑井兩氏の引用にされた COSSMANN, JENKINS, MARTIN, d'ARCHIAC and HAIME の圖でも明瞭に觀取することが出る。

今手元にある月吉層産の *Vicarya*（地質調査所所藏，高 77 mm，直徑 31 mm.，apex 及 aper- re 缺損，11 whorls 殘存）について見ると直徑約 19 mm. の whorl（body whorl より數へ

---

1) TAKEYAMA, T.: Notes on the Genus *Vicarya*, with Description of Two Japanese Forms. Ja our. Geol. Geogr., Vol. 10, pp. 137–140, 1933.

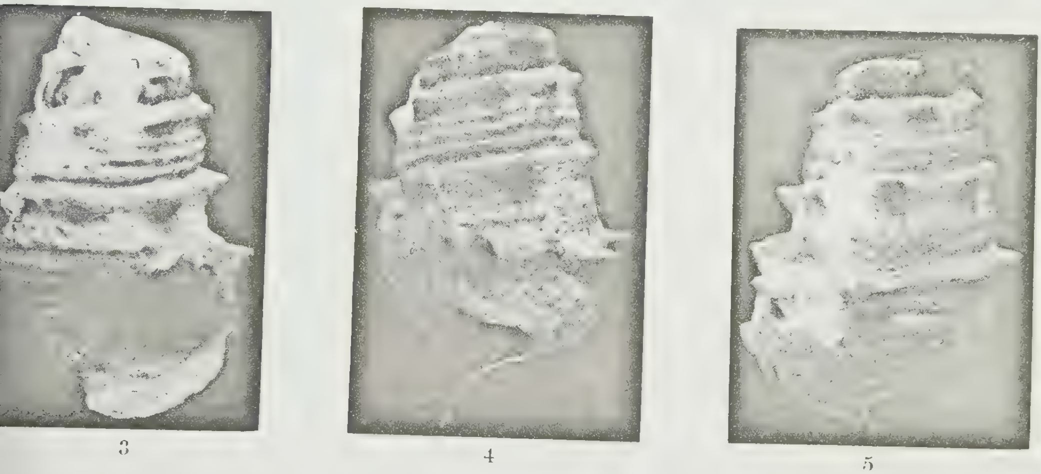
2) YABE, H. and HATAI, K. M.: On the Japanese Species of *Vicarya*. Sci. Rep., Tôhoku Imp. Univ Ser., Vol. XIX, No. 2. pp. 149–172, 1938.

3) 金原均二：ビカリアに就て，我等の礦物，第 6 卷，pp. 182–184，昭和 12 年。

5 番目）に於て subsutural band は約 20 の granule を有し，その内略〻一つ置きに稍〻大きな granule があり，spinous tubercle への遷移を示して居る。これより若い whorls では subsutural band は granule 列を有し，所々 granule の大きくなつた所もあるが spinous tubercle はない。又これ以後の adult whorl にあつても spinous tubercles の間に所々 granule が殘存して居る。この様な狀態は *callosa* 或は *callosa japonica* に於ては全然見る事は出來ない。この差異は個體發生上から見て可なり重要な點と思はれ，この點のみでも月吉產 *Vicarya* を *callosa* の亞種とすることには賛成し難い。

もう一つ注意すべき點は月吉層產 *Vicarya* は nepionic whorl より adult whorl まで通じて subsutural band の下に 3 條の beaded spirals を有し，これ等は何れも primary spirals であつて secondary ではない。（標本によつては primary spirals の他に secondary spiral の發達を見ることもある。例へば横山教授が Jour. Fac. Sci., Imp. Univ. Tokyo, Sec. II, Vol. 1, pl. XXVIII, figs. 4–5, に示されたもの）。之に反して *callosa* は Java 產標本にあつても邦產標本にあつても primary spirals は 2 條である。横山教授1)は美濃產 *Vicarya* "*baculum*" の記載をなすに當つて Java 產 *callosa* との差異を明確にし，此等 2 項も既に指摘されて居る。

筆者が嘗て月吉の化石產地が濫掘によつて荒された現在，*Vicarya* の最も良好な標本の得られる岐阜縣土岐郡土岐町清水松洞（マツボラ）の化石產地から得た標本は珍しくも aperture の完全なものであつ



3 4 5

Vicarya verneuili yokoyamai TAKEYAMA

Figs. 3–5. A specimen with complete aperture from Matubora, Simizu, Toki-mati, Toki-gun, Gihu-ken. 50×28.5 mm

。この標本を採集した時，竹山氏の論文は既に印刷中であつた爲同氏はこの標本については脚註2)て簡單に述べられたのみであつたが，*verneuili yokoyamai* の aperture の寫眞は未だ公表されてない様なので此處に揭載する（京大地質學教室所藏）。見られる如く apertural character は全 *callosa* のものに等しい。しかし同一屬に屬する以上その aperture の性質が等しいのは當然でつて，これは *yokoyamai* が *Vicarya* に屬することを示すのみで決して *yokoyamai* が *callosa*

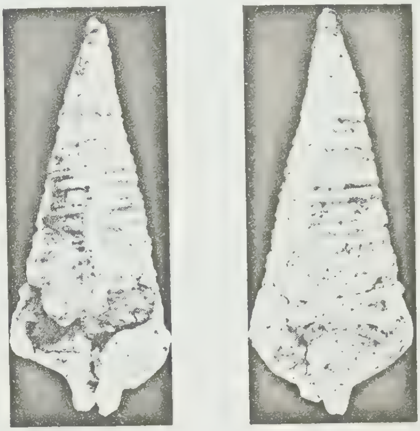
---

1) YOKOYAMA M.: Molluscan Fossils from the Tertiary of Mino. Jour. Fac. Sci., Imp. Univ. Tokyo, II, Vol. 1, P. 219, 1926.

2) TAKEYAMA, T.: 1933, p. 136.

種である理由にはならない。

時筆者は同一產地から他の多數の *Vicarya* と共に一つの興味ある *Vicarya* の標本を得た。こ寫眞に示す如く subsutural band は granule 列を有するのみでそこに, spinous tubercles く見られない。substural band 以下の sculpture は 3 條の beaded primary spirals と 1 secondary spiral とである。この標本は spinous tubercles の有無以外には全く他の共產 *Vicarya* と區別がないので筆者は當時これは單に的の variation に過ぎなからうと考へたのであつこの標本は又, 矢部•畑井兩氏が清水其他から記載さ *V. callosa martini* とは the last two or three rls が spinous tubercles を有すと云ふ點以外全くする。つまり *martini* は此の tubercle 無しの標本 *yokoyamai* との中間型ではあるまいかと考へられるである。



6 7

Figs. 6, 7. *Vicarya verneuili yokoyamai* Takeyama, a variation, without spinous tubercles. Matubora, Simizu, Toki-mati, Toki-gun, Gihu-ken. 80.7 × 32.9 mm.

山氏の *yokoyamai* の記載を見ると "The adult e is represented by about 4 later whorls, on ch the beads of the uppermost cord become ch larger and had better be called spinous tuber-, thus giving the cord the appearance of a band n tubercles; the number of these tubercles is 8 or n the last and the penultinate whorls.[1]" とあり, *tini* が the last two or three whorls に 8–9 の nous tubercles を有す[2]と云ふのと殆んど紙一重の違ひである。*martini* は單に *yokoyamai* の lt に達するのが遲れたものに過ぎないのではあるまいか。そして筆者の採集した標本は遂に lt に達することなくして終つたものであらう。其他の *yokoyamai* との微細な差異はすべて *oyamai* の發達のおくれたものとすれば解決されるのではあるまいか。矢部•畑井兩氏の擧げら産地を見ると *martini* は殆んど *yokoyamai* と共產して居る樣である。

邦に於ける *Vicarya* の產地は矢部•畑井兩氏の揭げられたもの[3]以外にも金原氏の記されたもがある[4]。この中福井縣丹生郡國見村鮎川（大丹生層）[5] 產の *Vicarya verneuili yokoyamai* に aperture の完全なものがある（京大地質學教室所藏）。又此の外地質調査所には信濃白峯山附記された *V. verneuili yokoyamai* の標本があるが正確な產地は不詳である。

以上の標本についての觀察から次く如く結論する。

. 津山型の *Vicarya* は *Vicarya callosa japonica* Yabe and Hatai である。

. 月吉型の *Vicarya* は *Vicarya verneuili yokoyamai* Takeyama であつて, *V. callosa* の亞とは認め難い。

. 從つて *V. callosa japonica* と *V. verneuili yokoyamai* とは單なる地方的な variation で

---

1) Takeyama, T.: 1933, p. 135.
2) Yabe, H. and Hatai, K. M.: 1938, p. 159.
3) Yabe, H. and Hatai, K. M.: 1938, p. 160.
4) 金原均二: 昭和 12 年, p. 183.
5) 竹山俊雄: 越前丹生山地北部の第三紀層, 地球, 第 20 卷, p. 40–45, 昭和 8 年。

はない。

4. *V. callosa martini* Yabe and Hatai は *V. verneuili yokoyamai* の variation であらう。

5. *V. callosa japonica* は大井川階（下部中新），*V. verneuili yokoyamai* は戸狩階（中部中新）とする竹山學士の說に贊成する。

擱筆するに當り，京大理學部地質學鑛物學教室在職當時の本屬研究に對し，御指導を賜つた中村•槇山兩教授，同教室所藏標本測定の勞を取られた前島俊郎氏，東大理學部地質學教室所藏 *Vicarya callosa* の topotype 觀察の便宜を計られた鈴木好一氏，並に英文摘要を御執筆下さつた東大小林助教授に深甚な謝意を表する。

On Certain Specimens of *Vicarya* (Résumé)

By

Nobuo Ikebe

While Takeyama classified in 1933 Japanese *Vicarya* into *V. callosa* Jenkins and *V. verneuili yokoyamai* Takeyama, Yabe and Hatai, through their precise study, lately split the former species into three subspecies, *japonica, yokoyamai* and *martini*. In Takeyama's Tuyama from of *V. callosa*, the number of spinose tubercles is constant throughout the whorls and has two primary spiral ridges below the band. The fact that the spinose tubercle is produced oblique to the axis of the shell renders it distinguishable from the typical from of *callosa* as pointed out by Yabe and Hatai. Although the writer is not quite convinced of the advisability of subspecific distinction in view of this difference, he accepts calling the form, *V. callosa japonica.*

V. verneuili has no tubercle in its nepionic whorl but numerous granules some of which develop into spinose tubercles in the adult stage. This feature is typical of *V. verneuili yokoyamai* (the Tukiyosi form) and is never seen in either *V. callosa* or *V. callosa japonica*. As this ontogenetical difference is an important one, the writer cannot approve of the reference of the Tukiyosi form to *V. callosa* as a subspecies of the latter. A further difference may be noted in the primary spiral ridges below the subsutural band, there being two in *callosa* but three which are beaded in Tukiyosi.

The writer procured a specimen having no spinose tubercle from the Tukiyosi bed and found that it can hardly be distinguished from *V. callosa martini* except that the tubercles in this specimen assume the spinose aspect in the last two or three whorls. *V. callosa martini* may be an intermediate form linking the spineless form with *V. verneuili yokoyamai*, especially as *V. callosa martini* is found associated with *V. verneuili yokoyamai*.

In conclusion the main points may be noted as follows :

(1) the Tuyama form of *Vicarya* is identical with *V. callosa japonica* Yabe and Hatai

(2) the Tukiyosi form of *Vicarya* may be identified with *V. verneuili yokoyamai* Takeyama but may not be taken as a subspecies of *V. callosa*

(3) *V. callosa japonica* and *V. verneuili yokoyamai* may not be regarded as local variations within an identical species

(4) *V. callosa martini* Yabe and Hatai may be a variant form of *V. verneuili yokoyamai*
(5) Takeyama's view that *V. callosa japonica* indicates the Lower Miocene Ōigawa stage
V. verneuili yokoyamai, the Middle Miocene Togari stage is justifiable.

94. Supplementary Notes on the Agnostida

By

Teiichi KOBAYASHI

(Received August 17th; read October 7th, 1939)

Since the manuscript on my study of the Agnostida[1] was finished, several new genera and species have been established. Besides some were overlooked for the reason that either I was not able to have access to their publication during the preparation of the paper or the species was referred to the non-agnostidian genus. Therefore comments on them are compiled in this paper.

1) The congenity of *Agnostus bonnerensis* RESSER, 1938 (Smiths. Misc. Coll. vol. 97, no. 3 p. 6, pl. 1, figs. 16–17) from the Middle Cambrian Lakeview limestone of Idaho with *Peronopsis montis*, as suggested by RESSER himself, forces the change of its generic position from *Agnostus* to *Peronopsis*. *Agnostus brighamensis* RESSER (Smiths. Misc. Coll. vol. 97, no. 12 p. 8, pl. 2, figs. 27–29) from the Middle Cambrian formation of Utah is another *Peronopsis*. Incidentally a round cranidium in fig. 1 on pl. 2 in the latter paper looks to me to belong to *Peronopsis* or some other genus of the Peronopsinae, instead of *Vistoia* (?) *minuta* as supposed by RESSER, insofar as can be judged from its illustration in which a narrow marginal rim, bilobed glabella and a pair of triangular basal side-lobes are clearly shown. According to RESSER, the illustration of *Agnostus bidens* by WALCOTT, non MEEK, is incorrectly drawn and in fact, its axis of pygidium is much shorter. RESSER established *Agnostus yellowstonensis* (nov.) (Smiths. Misc. Coll. vol. 97, no. 10, 1938, p. 26) for this form from the Upper Cambrian Dry Creek formation of Wyoming. The absence of the preglabellar axial furrow and the short axial lobe of the pygidium suggest *Micragnostus* or its adjacence for its proper position.

2) Several new genera and many new species were established by RESSER (Geol. Soc. Am. Sp. Pap. No. 15, 1938) for the agnostids obtained from the Appalachian mountains and they are as follows:

Acmarhachis typicalis RESSER (Upper Cambrian Nolichucky)
Proagnostus maryvillensis RESSER (Middle Cambrian Maryville)
Proagnostus major RESSER (Upper Cambrian Nolichucky)

---

[1] T. KOBAYASHI: On the Agnostids (Part I) Journn. Fac. Sci., Imp. Univ. Tokyo, Sec. II, Vol. 5, Pt. 5, 1939.

Proagnostus? centrensis RESSER (Middle Cambrian Conasauga)
Glyptagnostus angelini RESSER (Upper Cambrian Nolichucky)
Kormagnostus simplex RESSER (Upper Cambrian Nolichucky)
Kormagnostus speciosus RESSER (Upper Cambrian Nolichucky)
Kormagnostus harlanensis RESSER (Upper Cambrian Nolichucky)
Oedorhachis typicalis RESSER (Upper Cambrian Nolichucky)
Oedorhachis ulrichi RESSER (Upper Cambrian Nolichuky)
Oedorhachis boltenesis RESSER (Upper Cambrian Nolichucky)
Oedorhachis tennesseensis RESSER (Upper Cambrian Nolichucky)
Oedorhachis mesleri RESSER (Upper Cambrian Nolichucky)
Oedorhachis greendalensis RESSER (Upper Cambrian Nolichucky)
Acmarhachis RESSER (Type: *A. typicalis*)
Kormagnostus RESSER (Type: *K. simplex*)
Oedorhachis RESSER (Type: *O. typicalis*)
Toniorhachis RESSER (Type: *T. spinosa*)

The last mentioned genus is represented by a solitary pygidium which coincides with *Clavagnostus repandus* in most respects except the posterior pygidium which is slightly longer in *spinosa*, the difference, however, being no more than of specific value for Agnostidian classification.

Proagnostus BUTTS to which several species are referred includes homagnostids with the axial furrow dying out in the preglabellar field almost completely. As there is every different gradation in the expansion of the posterior axial lobe as well as in the obsoletion of preglabellar furrows, these characteristics serve no more than to make subgeneric distinction within *Homagnostus*. Among the species referred to *Oedorhachis O. boltensis* may be an exception which insofar as can be judged from the trilobed glabella provided with a median tubercle and the unusually expanded posterior axial lobe of the pygidium, looks to me to be more likely a *Pseudagnostus* than a *Homagnostus*.

Kormagnostus and *Acmarhachis*, on the other hand, are genera better qualified. The former resembles *Homagnostus*, especially *Oedorhachis*, but the anterior glabellar lobe is perfectly effaced. Therefore, this may be a member of the Agnostidae which lies parallel to the Spinagnostinae of the Peronopsidae. *Armarhachis* is a homagnostid genus with a long trilobed pygidial axis which is sharply pointed behind. Among *Peronopsis* (?) *latimarginalis*, *Glyptagnostus* "*reticulatus*", *Pseudagnostus latus*, *Agnostus inextectans* and *Homagnostus acutus* from the Upper Cambrian of British Columbia which I have described (KOBAYASHI), Japan. Jour. Geol. Geogr. vol. 15, 1938) the last one may be referred to *Acmarhachis* in *Homagnostus*. As noticed in my paper, the pointed hind of the pygidial axis is the most significant characteristic through which it can readily be distinguished from most of *Homagnostus*. On the other hand, *bonnerensis* and *brighamensis* tend to link *Acmarhachis* to *Homagnostus*. HOWELL and DUNCAN described *Homagnostus* (?) *lochmanae* from the earliest Upper Cambrian Park formation in Montana. (Bull. Wagner Free Inst. Sci., vol. 14, no. 1, p. 8, figs. 7–9) The axial furrow in the preglabellar field is almost obsolete in it.

3) Whitehouse (Mem. Queensland Mus., vol. 11, pt. 3, 1938) added nine species to the Australian agnostidian fauna as follows:

Agnostus seminula Whitehouse
Ceratagnostus magister Whitehouse
Goniagnostus purus Whitehouse
Goniagnostus cfr. *nathorsti* (Brögger)
Goniagnostus scaraboeus Whitehouse
Euagnostus sp
Homagnostus obesus (Belt)
Phalacrom cf. *nudum* (Beyrich)
Hypsagnostus clipeus Whitehouse

Ceratagnostus is a new genus and *C. magister* is its type. Besides, it includes *Agnostus incertus* for which *Doryagnostus* was established independently by myself. Therefore the former genus dated the 17th of March, 1939 ought to be synonymous with the latter dated the 7th of March, 1939, according to the rule of nomenclature.

4) Harrison (Revista del Museo de las Plata (N. Ser.) Tom. 1, Sect. Pal., 1939) established *Pseudoperonopsis* for *Agnostus sallesi* Munier Chalmas et Bergeron and *Trilobagnostus* for *Agnostus innocens* Clark. The latter genus designated the stage of development in which the median ridge is not extended as far as to the posterior axial lobe of the pygidium, the former assigns the group of *Peronopsis* whose axis of pygidium does not attain as far back as to the posterior brim. *Pseudoperonopsis* is a subgenus of *Peronopsis* while *Trilobagnostus* is that of *Lotagnostus*. Through this paper he added *Geragnostus* 2 spp. indet., *Trinodus jujuyensis* Harrison and *Gallagnostus dubius* Harrison to the Agnostidian fauna of South America.

5) Resser and Endo (Manchurian Sci. Mus. Bull. 1, 1937) described six new species of *Agnostus* i. e. *damesi*, *viator*, *ozaki*, *liaotungensis*, *cerves* and *egenics* from the Middle Cambrian Mapan formation of Manchuria among which *damesi* is an old representative of *Agnostus* if the combination of detached cephalon and pygidium is correct. It is especially interesting to see that the associate pygidium shows all of the characteristics of *Peronopsis rakuroensis* group to which the remaining species belong. The discussion of the specific identification of the Eastern Asiatic species is deferred to some other occasion.

6) A cephalon of *Agnostus* cfr. *agnostiformis* (M'Coy) was found associated with *Encrinurus*, orthids and cystids at a point WSW of the bridge over the Nam Wabya in the Southern Shan States, Burma (F. R. Cowper Reed, 1936, Palaeontol. Indica, New Ser. Vol. 21, Mem. No. 3, p. 54, pl. 6, fig. 10). So far as I can judge from its illustration, it is typical of *Trinodus*. Although Reed identified it with *Agnostus* cfr. *glabratus* from the Northern Shan State which I had named *Trinodus reedi*, they are different in the outline of glabella which is cylindrical in it and more or less conical in *reedi*.

7) *Æglina boia* Hicks and *Agnostus hirindo* Salter by Hicks from the Middle Arenig of St. David's had escaped my attention (Hicks, Q. J. G. S. London vol. 31, 1875). The latter, insofar as the pygidium tells its taxonomic position, lies within the bounds of *Geragnostus* (*Micragnostus*). The former is a smooth agnostid having a narrow brim on each shield of similar outline and apparently of low

convexity. This agrees with *Gallagnostus* in most respects but the thoracic axis is much shorter than usual. The fact that the form with narrow axis appears later than the other with the broad axis is strong evidence showing that similar obsolete forms were derived at different intervals from different points of the Agnostida. *Gallagnostoides* nov. is established for this species. It can readily be distinguished from *Gallagnostus* with reference to the breadth of the thoracic axis which occupies a little more than one-third of the thorax while it corresponds to about two-thirds in *Gallagnostus*.

アグノスタス類研究補遺（摘要）

小林貞一

拙論 On the Agnostida の稿を終て後に發表せられたる新屬新種を列擧して,之に關する私見を述ぶ。*Tomer*
hachis は *Clavagnostus* の亞屬, *Proagnostus*, *Oedorhachis*, *Acmarhachis*, は *Homagnostus* の亞屬, *Pseudo*
peronopsis は *Peronopsis* の亞屬, *Trilobatagnostus* は *Lotagnostus* の亞屬なる可し。*Kormagnostus* の Agno
stidae に於けるは *Spinagnostus* の Peronospsidae に於ける關係をなす。*Ceratagnostus* は *Doryagnostus*
物異稱なり。*Æglina boia* を基本種として *Gallagnostoides* を樹立す。

95. *Three Different Kinds of Odontoma found in the Molars of Asiatic Fossil Elephants.*

By

Fuyuji TAKAI

(Read February 18 th; received August 30 th, 1939)

Mr. Keniti YAMASITA obtained several mammalian remains from the younger Pleistocene formation nine meters below the surface near Ts'ai-chia-chiang Station of the Hsin-ching—Harbin Railway, on the bank of the La-lin-hê River, a tributary of the Sungari and Mr. Enzo KON'NO submitted the collection to the writer for determination. It contained *Elephas mammonteus* (an isolated left m2), *Equus* cf. *przewalskii* (two isolated left $\overline{\mathrm{m1}}$ and $\overline{\mathrm{m2}}$), *Rhinoceros antiquitatis* (two isolated left $\mathrm{m}\underline{3}$), and *Bos primigenius* (a fragmental left lower jaw with $\overline{\mathrm{p4}}$–m3) besides a molar of *Elephas mammonteus* of unknown position which is, however, of special interest because it provides an example of odontoma.

Odontomas are the benign tumors made up of three kinds of material, namely dentine, enamel, and cement like the uninjured tooth but sometimes encrusted by calcareous material secreted during the course of tooth development. Modifying S. V. MEAD's definition[1], three kinds of odontoma may be distinguished as follows:

(1) *Simple Odontomas:*—This implies an irregularity in the shape of the tooth which occasionally undergoes sporadic calcification. It often occurs in the buried state in the jaw bone and is covered by the fibrous capsule, appearing more frequently in the lower jaw than in the upper one and in man as well as in animals.

(2) *Compound Odontomas:*—This is a result of sporadic calcification of the thickened and enlarged tooth capsule and often occurs in the lower jaw. The following three cases are recognized, namely: (a) the result of adhesion between several supernumerary teeth in which case, there is no decrease in the number of teeth; (b) the result of adhesion between the supernumerary tooth and the permanent tooth in which case also there is no decrease in the number of teeth; and (c) the result of adhesion between permanent teeth in which case the teeth diminish in number.

(3) *Composite Odontomas:*—This consists of a heterogeneous mass of dentine, enamel, and cement and is found attached to some part of the normal tooth.

Among the number of mammalian remains so far known of Eastern Asia, the three different types of odontoma are represented by three different molar specimens.

The specimen at hand is an example of a simple odontoma of the lower molar. The tumor is pyramidal and the arrangement of dentine, enamel, and cement is normal but the tooth assumes an irregular shape. The sporadic calcification is

---

[1] S. V. MEAD: Disease of the Mouth, pp. 455–458, text-figs. 201–202, 1927.

96. *Miocene Mollusca from the Neighbourhood of Cucurrupi, Department of Chocó, Colombia*

By

Tuneteru OINOMIKADO

(Received October 11th; read December 16th, 1939)

The material described in this paper was collected in 1938 by Mr. Shiro OHOMACHI, whom I wish to thank for kindly forwarding me the collection for study. The localities in which they were found are in the Tertiary deposits exposed along the Sn. Juan valley, near Cucurrupi, about 55 km. north of Buenaventura, Department of Valle del Cauca, Colombia. The localities listed below are considered to belong to the same horizon. The fossil beds, to which I suggest "Cucurrupi beds" for convenience sake, are composed of rather soft grey shale. The collection is now stored in the Imperial Geological Survey of Japan.

I wish to express my sincere gratitude to Prof. Shintarô NAKAMURA of the Institute of Geology, Kyôto Imperial University, for his invaluable suggestions, and to Mr. Ichizo ÔMURA, chief geologist of Nippon Oil Company, Limited, for his giving me the opportunity to make this study. I wish also to express my heartfelt thanks to Messrs. Kôiti SUZUKI and Fuyuji TAKAI of the Institute of Geology, Tokyo Imperial University, and to Mr. Kinji KANEHARA of the Imperial Geological Survey of Japan, for their assistance in many ways.

I. List of Localities and Fossils

N3: On the right bank of about 4 km. up the Copoma from the confluence with the Sn. Juan.
N4: On the left bank of the Copoma, 600 m. up the stream from N 3.
05: On the left bank of the Cucurrupi, some 3.5 km. from the river junction with Sn. Juan.
P2; On the left bank of the Sn. Juan, about 6 km. upper reaches from the confluence with the Cucurrupi.

II. Correlation

Tuberá group of North Colombia: The name of Tuberá group was first suggested by ANDERSON[1] without any definite delimination, and later the name was

---

[1] ANDERSON: Bull. Amer. Assoc. Petrol. Geol., vol. 10, no. 4, pp. 382–404, 1926.

Species	N 3	N 4	O 5	P 2	Tuberá Group			Miocene, Cartagena	Gatun Formation, Panama	Gatun Formation, Costa Rica
					M-N	P	R			
GASTROPODA										
Turritella altilira CONRAD	+				+	+			+	
Turritella altilira chiriquiensis OLSSON			+	+						
Architectonica granulata (LAMARCK)			+	+		+			+	
Natica guppyana TOULA			+		+	+			+	+
Pyrene chiriquiensis (OLSSON)		+	+			+				+
Pyrene ohomachii n. sp.			+	+						
Pyrene tumbezia olssoni n. subsp.			+							
Phos gatunensis TOULA			+						+	
Phos mexicanus BOSE				+						+
Cantharus dalli (BROWN and PILSBRY)			+					+	+	
Fusinus cf. *honensis* OLSSON			+							
Oliva sayana immortua PILSBRY and BROWN				+		+	+	+		+
Vexillum cucurrupiensis n. sp.			+							
Cancellaria cossmanni OLSSON			+			+				
Cancellaria dariena TOULA			+			+			+	
Turris albida (PERRY)			+	+	+	+			+	
Turris vanningeni (BROWN and PILSBRY)			+	+					+	
Cythara cf. *cercadica* MAURY			+							
"*Drillia*" *limonetta* OLSSON			+							
"*Drillia*" *papaya* OLSSON			+							+
"*Drillia*" *aquanica* OLSSON			+							
"*Drillia*" cf. *musacina* OLSSON			+							
"*Drillia*" cf. *henkeni* SOWERBY		+	+							
Conus multiratus gaza JOHNSON and PILSBRY		+	+					+	+	
Terebra gatunensis TOULA			+				+			
Terebra gabbi cucurrupiensis n. subsp.				+						
PELECYPODA										
Glycymeris lamyi trilobicosta PILSBRY and BROWN	+							+		
Arca occidentalis PHILIPPI	+							+		
Anadara dariensis (BROWN and PILSBRY)			+			+			+	
Anadara hindsi (OLSSON)			+							
Chama congregata CONRAD	+		+							
Corculum heredium ohomachii n. subsp.	+		+							
Callista maculata (LINNÉ)	+				+	+			+	+
Aloidis sancti-dominici (MAURY)	+		+							
Aloidis hexacyma (BROWN and PILSBRY)		+		+					+	

employed by him[1] in a more definite treatment. The Tuberá group, consisting shale, sandy shale, and sandstones, is well represented about Tuberá mountain its environs. The three distinct fossil horizons, namely M-N, P and R are

---

[1] ANDERSON: Proc. Calif. Acad. Sci., vol. 16, no. 3, pp. 87-91, 1927.

cognized by the same author[1], who listed and described many species of mollusks from these horizons. As seen in the list of fossils, among the 36 species from the Cucurrupi beds 4 are found in the horizons M-N, 10 in the horizon P, and 2 in the horizon R. The Cucurrupi may be contemporaneous with horizon P, which corresponds to the Helvetian.

Miocene of Cartagena, Colombia: PILSBRY and BROWN[2] describe 34 species of mollusks, most of which are local forms. Only 4 species are in common with the Cucurrupi beds and the Miocene of Cartagena. Exact correlation is impossible for the poor common species.

Gatun formation of Panama and of Costa Rica: The West Colombia Miocene is closely connected to that of Costa Rica and Panama. There are 17 common species between the Cucurrupi beds and the Gatun formation of Costa Rica, and 13 between the Cucurrupi and the Gatun of Panama. These species are cited in the accompanying list. The Gatun formation of Panama and Costa Rica may be equivalents of the Cucurrupi.

Miocene of Ecuador and Peru: SHEPPARD[3] listed several Miocene mollusks of Ecuador, of which two species, namely *Turritella altilira* CONRAD and *Turris albida* (PERRY), are in common with the Cucurrupi. OLSSON[4] reported many Peruvian Miocene shells, of which *Arca dariensis* CONRAD and *Turritella altilira* CONRAD are common to the Cucurrupi beds and the Cardalitos formation. *Pyrene tumbezia olssoni* OINOMIKADO is closely related to *Pyrene tumbezia* (OLSSON) from the Lower Zorritos formation. According to OLSSON, the Peruvian Miocene clearly belongs to two separate faunal provinces, the northern or that of Zorritos being warm-water and distinctly Caribbean in character while the southern or that of the Sechura and Paracas belongs to a cooler water type, and he suggests a Tertiary geosyncline, the Bolivar geosyncline, extending from Northern Colombia south to Peru along the Pacific coast. The Cucurrupi beds has probably been deposited in this geosyncline, and may be contemporaneous with the Cardalitos formation.

Miocene of Santo Domingo: 7 species are common with the Cucurrupi. *Architectonica granulata* (LAMARCK), *Turris albida* (PERRY), and *Arca occidentalis* PHILIPPI are found in the Gurabo and Cercado formations. *Conus multiratus gaza* JOHNSON and PILSBRY is restricted to the Gurabo, and *Terebra gatunensis* TOULA, *Chama congregata* CONRAD, and *Aloidis sancti-dominici* (MAURY) are confined to the Cercado.

Miocene of Trinidad: The following species are in common with the Cucurrupi:

Architectonica granulata (LAMARCK)	Manzanilla; Springval.
Turris albida (PERRY)	Manzanilla.
Glycymeris lamyi trilobicosta PILSBRY and BROWN	Tamana; Machapoorie; Manzanilla; Brasso.

---

[1] ANDERSON: Proc. Calif. Acad. Sci., vol. 18, no. 4, pp. 73–213, 1929.

[2] PILSBRY and BROWN: Proc. Acad. Nat. Sci. Phila., vol. 69, pp. 32–41, 1917.

[3] SHEPPARD: Bull. Amer. Assoc. Petrol. Geol., vol. 12, no. 6, pp. 671–673, 1928.

[4] OLSSON: Bull. Amer. Paleontology, vol. 19, no. 68, pp. 1–216, 1932.

Arca occidentalis PHILIPPI	Springval.
Callista maculata (LINNÉ)	Springval.

The common species between the Dominican and Trinidad Miocene formations and the Cucurrupi beds are mostly living forms. Exact correlation is difficult owing to the paucity of characteristic forms. ANDERSON1) states that the middle portion of the Tuberá group is correlated to the Gatun formation of the Canal Zone and the Gurabo of Santo Domingo. The Brasso Miocene of Trinidad is regarded by MAURY2) as the equivalent of the Gatun formation of the Canal Zone and the Cartagena beds of North Colombia. The deposition of the Cucurrupi, correlated to the horizon P of the Tuberá group, may be nearly contemporaneous with that of the Brasso and the Gurabo.

III. Description of Species

Turritella altilira CONRAD

Pl. 29 (15), fig. 2.

Turritella altilira CONRAD, Pac. R. R. Repts., vol. 6, pt. 2, p. 72, pl. 5, f. 19, 1857; BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 358, pl. 27, f. 2, 3, 1911; OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 150, pl. 14, f. 6, 7, 1922; HODSON, Bull. Amer. Pal., vol. 11, no. 45, pl. 26, f. 1, pl. 28, f. 3, pl. 29, f. 1, 1926; SHEPPARD, Bull. Amer. Assoc. Petrol. Geol., vol. 12, no. 6, p. 671, 1928; ANDERSON, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 118, pl. 17, f. 4, 5, 1929.

Locality: N 3.

Turritella altilira chiriquiensis OLSSON

Pl. 29 (15), fig. 3.

Turritella altilira chiriquiensis OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 150, pl, 14, f. 4, 8, 9, 14, 1922.

Locality: O 5, P 2.

Architectonica granulata (LAMARCK)

Pl. 29 (15), fig. 11.

Solarium granulatum LAMARCK, An. sans. Vert., vol. 7, p. 3, 1822; MAURY, Bull. Amer. Pal., vol. 5, no. 29, p. 131, pl. 23, f. 3, 1917.

Solarium gatunense TOULA, Jarb. der K. K. Geol. Reichs., vol. 58, p. 693, pl. 25, f. 3, 1909.

Solarium granulatum gatunensis BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 360, 1911.

Architectonica granulata OLSSON, Bull. Amer. Pal., vol. 9, no, 39, p. 154, pl. 13, f. 10–12, 1922; MAURY, Bull. Amer. Pal., vol. 10, no. 42, p. 236, pl. 40, f. 1, 1925; ANDERSON, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 122, 1929.

Locality: O 5, P2.

---

1) ANDERSON: Loc. cit., 1929.

2) MAURY: Bull. Amer. Pal., vol. 10, no. 42, pp. 7–250, 1925.

Natica (Naticarius) guppyana Toula

Pl. 29 (15), fig. 18.

Natica (Stigmaulax) guppyana Toula, Jarb. der K. K. Geol. Reichs., vol. 58, p. 696, pl. 25, f. 6, 1909; Olsson, Bull. Amer. Pal,, vol. 9, no. 39, p. 156, pl. 13, f. 13–15, 1922.

Natica guppyana Brown and Pilsbry, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 360, 1911; Anderson, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 123, 1929.

Locality: O 5.

Pyrene (Strombina) chiriquiensis (Olsson)

Pl. 29 (15), figs. 6 a, b.

Strombina chiriquiensis Olsson, Bull. Amer. Pal., vol. 9, no. 39, p. 302, pl. 10, f. 14, 24, 1922; Anderson, Proc. Calif Acad. Sci., vol. 18, no. 4, p. 143, 1929.

Locality: N 4, O 5.

Pyrene (Strombina) ohomachii n. sp.

Pl. 29 (15), figs. 4 a, b.

Shell fusiform, rather solid, with about 8 whorls, lacking protoconch in all specimens seen; suture distinctly, though not conspicuously channelled; body-whorl higher than spire, abruptly narrowed below into the base, subtriangular in transverse section, though having no remarkable hump or node on the left side, flattened behind the varix; surface smooth, sometimes sculptured with several short longitudinal ripples near the suture on the ventral side of the body-whorl; canal short, slightly recurved, spirally grooved, about 8 in number.

Locality: O 5, P 2.

Measurement:

	Height	Diameter	Number of whorls
Holotype (Loc. O 5)	23.6 mm.	10.4 mm.	8
Specimen from Loc. P 2.	22.7 mm.	10.4 mm.	7
〃 〃	21.6 mm.	9.8 mm.	7

This shell is closely allied to *Strombina prisima* Pilsbry and Johnson[1], but differs by having no remarkable hump on the left side of the last whorl. The new species has a less slender shell than *Strombina lessepsiana* Brown and Pilsbry[2], and has a higher body-whorl than *Strombina dorsata* (Sowerby)[3].

Fyrene (Strombina) tumbezia olssoni n. subsp.

Pl. 29 (15), figs. 5 a, b.

Shell small, fusiform, with rather slender, long spire. Whorls about 9, the first 3 belonging to the small, smooth, pointed nucleus. Post-nuclear whorls longitudinally ribbed. Ribs numerous, strong, vertical, extending from upper suture to the lower, beaded about their upper extremities, about 19 on the penultimate whorl. The ventral side of the body-whorl ornamented with about 7, longitudinal, very slightly curved ribs, but the dorsal side smooth,

---

1) Pilsbry and Johnson: Proc. Acad. Nat. Sci. Phila., vol. 63, p. 352, pl. 25, f. 9, 10, 1911.

2) Brown and Pilsbry: Proc. Acad. Nat. Sci. Phila., vol. 63, p. 352, pl. 25, f. 11, 12, 1911.

3) Sowerby: Proc. Zool. Soc., p. 120, 1832.

with a sutural cord. The last rib on the body-whorl somewhat stronger than the other. Aperture narrow, linear-ovate. Outer lip large, expanded. Lower half of the inner and outer lips feebly denticulated. Canal short, beak-like, spirally striated, with about 10 threads on the back.

Locality: O 5.

Measurement:

	Height	Diameter
Holotype	7.8 mm.	3.4 mm.
Paratype	8.5 mm.	3.7 mm.
〃	8.2 mm.	3.8 mm.

The shell is closely allied to *Strombina tumbezia* OLSSON[1] from the Lower Zorritos formation of Peru, but it differs from the species in that the ribs are more numerous on the penultimate whorl and shorter on the body-whorl. The new subspecies resembles *Strombina sincola* OLSSON[1] from the Gatun formation of Costa Rica, but differs from that species in that the shell is more slender; the longitudinal ribs are more numerous; the ventral side of the last whorl is more strongly ribbed; the outer lip is less thickened.

Phos (Antillophos) gatunensis TOULA

Pl. 29 (15), fig. 15.

Phos gatunensis TOULA, Jahrb. der K. K. Geol. Reichs., vol. 58, p. 701, pl. 28, f. 6, pl. 25, f. 11, 1909; BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 349, pl. 25, f. 1, 2, 1911; OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 117, pl. 9, f. 4, 5, 1922.

Locality: O 5.

Phos (Antillophos) mexicanus BOSE

Pl. 29 (15), fig. 16.

Phos mexicanus BOSE, Bol. de Inst. Ceol. de Mexican, no. 22, p. 38, pl. 4, f. 18–21, 1906; OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 117, pl. 9, f. 10, 11, 1922.

Locality: P 2.

A single specimen obtained at Loc. P 2 having much more finely reticulated sculpture than that of the Mexican and Costa Rican fossils. The fossil forms of Costa Rica possess about 18 longitudinal ribs on the body-whorl, while the specimen from Loc. P 2 has about 20 ribs. In other respects, the Colombian fossil is exactly like the Costa Rican one. In the case of *Phos gatunensis* TOULA, according to BROWN and PILSBRY[2], there is rather wide variation in the number of ribs, while the number of major spirals remains very constant, *Phos mexicanus* BOSE will also be variable in the number of longitudinal ribs.

Cantharus dalli (BROWN and PILSBRY)

Pl. 29 (15), fig. 12.

Solenosteria dalli BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 348, pl. 24,

---

[1] OLSSON: Op. cit., p. l'o, pl. 18, f. 7, 1932.

[2] BROWN and PILSBRY: Op. cit., p. 349, 1911.

14, 1911; PILSBRY and BROWN, Proc. Acad. Nat. Sci. Phila., vol. 69, p. 34, 1917; OLSSON Bull. Amer. Pal., vol. 9, no. 39, p. 113, pl. 8, f. 8, 1922.

Locality: O 5.

Fusinus cf. *honensis* (OLSSON)

cf. *Fusus honensis* OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 104, pl. 8, f. 6, 1922.

Locality: O 5.

Oliva sayana immortua PILSBRY and BROWN

Pl. 29 (15), fig. 25.

Oliva sayana immortua PILSBRY and BROWN, Proc. Acad. Nat. Sci. Phila, vol. 69, p. 33, pl. 5, f. 6, 1917; OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 89, pl. 7, f. 6, 7, 1922.

Oliva sayana, ANDERSON (in part), Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 127, 1929.

Locality: P 2.

Vexillum (*Uromitra*) *cucurrupiensis* n. sp.

Pl. 29 (15), figs. 10 a, b.

Shell moderate, fusiform, slender, with high spire. Nuclear whorls 2, smooth rounded. Post-nuclear whorls 8, slightly inflated, sculptured with axial ribs and spiral cords. Axial ribs 14 on the body-whorl, acute, slightly curved, smooth at the summits. The intervals between the ribs are concave, and having spiral cords which are slightly broader than the interspaces, and not running over the ribs. There are 7 cords in the penultimate whorl. The cords and its interspaces in the basal part of the body-whorl are narrower than those of the periphery. Outer lip lirate within. Columella subvertical, with 5 oblique folds, decreasing in size and space from above.

Locality: O 5.

Measurement:

	Height	Diameter
Holotype	16.4 mm.	6.7 mm.

This species resembles *Mitra tortuosella* PILSBRY and JOHNSON[1] but differs by its higher spire and less numerous ribs. It is distinguishable from *Mitra willcoxii* DALL[2] by having a slender shell.

Cancellaria (*Cancellaria*) *cossmanni* OLSSON

Pl. 29 (15), fig. 17.

Cancellaria cossmanni OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 81, pl. 6, f. 9, 11, 1922; ANDERSON, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 117, 1929.

Locality: O 5.

Cancellaria (*Cancellaria*) *dariena* TOULA

Pl. 29 (15), fig. 19.

Cancellaria dariena TOULA, Jarb. der K. K. Reichs., vol. 58, p. 31, pl. 25, f. 13, pl. 28, f. 2, 1909;

---

[1] PILSBRY and BROWN: Op. cit., p. 165, 1917.

[2] DALL: Trans Wagner Free Inst. Sci., vol. 3, pt. 1, p. 93, pl. 3, f. 10, 1890.

BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 345, pl. 24, f. 3, 4, 1911; OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 80, pl. 6, f. 8, 1922; ANDERSON, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 115, 1929.

Cancellaria dariena trachyostraca BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 345, pl. 24, f. 1, 2, 1911.

Cancellaria dariensis COSSMAN, Jour. de Conch., vol. 61, p. 51, pl. 4, f. 9, 10, 1913.

Locality: O 5.

According to WOODRING[1], OLSSON's *barretti* from Costa Rica is probably *dariena.*

Turris (Polystira) albida (PERRY)

Pl. 29 (15), fig. 13.

Pleurotoma albida PERRY, Conch. Expl., pl. 32, f. 4, 1811; DALL, Trans. Wagner Free Inst. Sci., vol. 3, pl. 1, p. 28, pl. 4, f. 8, 1890; BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 343, 1911.

Turris albida DALL, U. S. Nat. Mus, Bull. 90, p. 38, pl. 5, f. 13, pl. 14, f. 7, 1915; MAURY, Bull. Amer. Pal., vol. 5, no. 29, p, 50, pl. 8, f. 4–8, 1917; OLSSON, Bull. Amer. Pal., vol, 9, no. 39, p. 58, pl. 4, f. 1, 2, 1922; MAURY, Bull. Amer. Pal., vol. 10, no. 42, p. 187, pl. 32, f. 11, 1925; SHEPPARD, Bull. Amer. Assoc. Petrol. Ceol., vol. 12, no. 6, p. 672, 1928; ANDERSON, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 113, 1929.

Locality: O 5, P 2.

Turris (Gemmula) vaningeni (BROWN and PILSBRY)

Pl. 29 (15), fig. 14.

Pleurotoma (Gemmula) vaningeni BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 64, p. 505, pl. 22, f. 4, 1912; COSSMAN, Jour. de Conch., vol. 61, p. 19, pl. 2, f. 21, 22, 1913.

Locality: O 5, P 2.

Cythara cf. *cercadica* MAURY

cf. *Cythara cercadica* MAURY, Bull. Amer. Pal., vol, 5, no. 29, p. 61, pl. 9, f. 15, 1917.

Locality: O 5.

Glyphostoma andersoni n. sp.

Pl. 29 (15), figs. 8 a, b.

A single incomplete specimen at hand largely broken at apertural and basal parts. Shell moderate in size, solid, with angulated whorls, lacking protoconch, Surface sculptured with longitudinal ribs and spiral cords. Under the lens, all the surface except on the spirals very finely wrinkled. Spiral sculpture in the fifth whorl from the last one consisting of two rounded cords, the one forming the angle and the other situated near the lower suture. In the fourth whorl, a very feeble thread appears between the two spirals. The third whorl sculptured with 3 strong cords at the periphery shouldering the whorl, the middle somewhat weaker than the other, and with 2 fine threads behind the shoulder and a supersutural one. The penultimate whorl sculptured with 3 cords at the periphery, 2 granulated

---

[1] WOODRING: Carnegie Inst. Wash., Pub. no. 385, p. 219, 1928.

threads behind the shoulder, and 2 very weak threads between the super-sutural and the lowest peripheral cord. The body-whorl ornamented with many spiral cords, of which 3 at the perphery, about 10 more granulated on the tapering base, 2 behind the shoulder, weaker than the other. The interval between the lowest peripheral cord and the uppermost granulated one is sculptured with 2 fine threads. A very fine thread is recognized between the uppermost granulated cord and next one. Longitudinal ribs mostly peripheral, crossed by spirals, about 10 in the last whorl. Anal fasciole vertical below the upper suture, then inclined to the shoulder, finely ribbed. Inner lip finely denticulated.

Locality: O 5.

Measurement:

Holotype Height 20 mm. (protoconch and basal part wanting), diameter 8.6 mm. (outer lip wantimg).

This species recalls *Glyphostoma caronensis* MANSFIELD[1] a fossil species of Trinidad, but differs in its larger shell and in the details of the sculpture, Compared with *Glyphostoma johnsoni* DALL,[2] the new species has a slender shell, and differs in the sculpture.

"*Drillia*" *limonetta* OLSSON

Drillia limonetta OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 70, pl. 5, f. 10, 1922.

Locality: O 5.

"*Drillia*" *papaya* OLSSON

Drillia papaya OLSSON, Bull. Amer. Pal., vol. 9, no, 39, p. 63, pl. 4, f. 5, 1922.

Locality: O 5.

"*Drillia*" *aquanica* OLSSON

Pl. 29 (15), fig. 20.

Drillia aquanica OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 65, pl. 5, f. 16, 17, 1922.

Locality: O 5.

Measurement: Height 10.4 mm., diameter 4 mm., number of whorls 9.

Compared with the typical from, the specimen obtained at Loc. O 5 has a smaller shell with fewer ribs. In the other respects it quite agrees with the typical one. This shell will be an immature form of OLSSON's species.

"*Drillia*" cf. *musacina* OLSSON

Pl. 29 (15), fig. 9.

cf. Drillia musacina OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 69, pl. 5, f. 27, 28, 1922.

Locality: O 5.

Measurement: Height of 6 whorls 19.5 mm. (protoconch wanting), diameter 7.6 mm.

A single specimen from Loc. O 5 agrees in general aspects with OLSSON's species, but the former has more numerous ribs.

---

1) MANSFIELD: Proc. U. S. Nat. Mus., vol. 66, art 2, p. 26, pl. 4, f. 1, 1925.

2) DALL: Op. cit., vol. 3, pt. 2, p. 223. pl. 14, f. 4, 1892.

"*Drillia*" cf. *henekeni* SOWERBY

Pleurotoma cf. *henekeni* SOWERBY, Quart. Jour. Geol. Soc. London, vol. 6, p. 50, pl. 10, f. 6, 1849; GUPPY, Quart. Jour. Geol. Soc. London, vol. 32, p. 526, 1876.

Locality: N 4, O 5.

Conus (*Leptoconus*) *multiliratus gaza* JOHNSON and PILSBRY

Pl. 29 (15), fig. 30.

Conus gaza JOHNSON and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 342, pl. 23, f. 2, 3, 1911; PILSBRY and BROWN, Proc. Acad. Nat. Sci. Phila., vol. 69, p. 32, 1917; MAURY, Bull. Amer. Pal., vol. 5 no. 29, p. 46, pl. 7, f. 12, 1917; PILSBRY (part), Proc. Acad. Nat. Sci. Phila., vol. 73, p. 330, 1922.

Conus marginatus GABB (not SOWERBY), Trans. Amer. Philos. Soc., vol. 15, p. 230; MAURY, Bull. Amer. Pal., vol. 5, no. 29, p. 46, pl. 7, f. 11, 1917.

Conus (*Leptoconus*) *planiliratus* COSSMAN (part, not SOWERBY), Jour. de Conch., vol. 61, p. 48, pl. 3, f. 24–26 (not 27).

Conus multistriatus OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 54, pl. 1, f. 21, 23, 1922.

Conus (*Leptoconus*) *multiliratus gaza* WOODRING, Carnegie Inst. Washington, Pub., no. 385, p. 212, pl. 11, f. 3, 1928.

Locality: N 4, O 5.

Terebra (*Strioterebrum*) *gatunensis* TOULA

Pl. 29 (15), fig. 7.

Terebra (*Oxymeris*) *gatunensis* TOULA, Jahrb. der K. K. Geol. Reichs., vol. 58, p. 705, pl. 25, f. 14, 1909.

Terebra (*Myurella*) *gatunensis* COSSMAN, Jour. de Conch., vol. 61, p. 13, pl. 1, f. 26–29, 1913.

Terebra gatunensis BROWN and PILSBRY, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 339, pl. 22, f. 2, 1911; MAURY, Bull. Amer. Pal., vol. 5, no. 29, p. 31, pl. 4, f. 5, 1917; OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 36, pl. 1, f. 4–6, 1922; ANDERSON, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 106, 1929.

Locality: O 5.

Terebra (*Paraterebra*) *gabbi cucurrupiensis* n. subsp.

Pl. 29 (15), figs. 1.

A single incomplete specimen wanting protoconch and apertural portion. Shell large, solid, rivaling in size the Dominican fossil *Terebra gabbi* DALL. Whorls 10 in the height of 61.2 mm., rapidly increasing in diameter, slightly convex. Early whorls deeply sculptured but the later one gradually diminishing in depth. Surface ornamented with 2 thickened, subsutural bands crossed by very fine oblique riblets and microscopic spiral threads. The lower band about half the width of the upper. The 2 bands occupying about 3/4 of the whorl. The remaining part of the whorl sunken and crossed by very fine vertical riblets and microscopic spiral threads. On the third whorl from the last one, a groove between the sub-sutural bands becomes weaker and turns into a stria. The longitudinal riblets are also weaker on the same whorl. On the penultimate whorl, the stria becomes more and more weaker. The last two whorls are ornamented with the growth lines instead of the longitudinal riblet

Locality: P 2.

Measurement:

	Height of 10 whorls	Diameter
Holotype	61.2 mm.	18.6 mm.

This subspecies much resembles *Terebra gabbi* Dall[1], but it differs from the latter in that the shell is less rapidly increasing in diameter and the sub-sutural band is broader. This *Terebra* is closely allied to *Terebra sulcifera* Sowerby[2], but differs in its somewhat convex whorls and complete loss of sculpture on attaining old age. The new subspecies may probably be an intermediate from of these species.

Glycymeris lamyi trilobicosta Pilsbry and Brown

Pl. 29 (15), fig. 22.

Glycymeris trilobicosta Pilsbry and Brown: Proc. Acad. Nat. Sci. Phila., vol. 69, p. 39, pl. 6, f. 5, 1917; Maury, Bull. Amer. Pal., vol. 10, no. 42, p. 32, pl. 18, f. 11, 1925.

Locality: N 3.

Olsson[3] combined *Glycymeris canalis* Brown and Pilsbry[4] from the Canal Zone and *Glycymeris trilobicosta* Pilsbry and Brown from Colombia into a single species. While Anderson[5] suggested that the two specimens of *Glycymeris canalis* figured by Olsson are referred to *Glycymeris lamyi* Dall[6]. The specimens from Loc. N 3, one of which measures 20.9 mm. in the height and 20.7 mm. in the length, quite agree with the figure and description of *Glycymeris trilobicosta* given by Pilsbry and Brown.

Arca occidentalis Philippi

Pl. 29 (15), fig. 21.

Arca occidentalis Philippi, Abbild. und Beschr., vol. 3, p. 14, pl. 17 b, f. 4 a-c, 1847; Guppy, Quart. Jour. Geol. Soc. London, vol. 32, p. 531, 1876; Maury, Bull. Amer. Pal., vol. 5, no. 29, p. 163, pl. 29, f. 3, 1917; Olsson, Bull. Amer. Pal., vol. 9, no. 39, p. 181, pl. 22, f. 1, 1922; Woodring, Carnegie Inst. Washington, Pub.. no. 366, p. 29, pl. 2, f. 89, 1925; Maury, Bull. Amer. Pal., vol. 10, no. 42, p. 34, pl. 1, f. 1, 2, 1925; Anderson, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 147, 1929.

Arca noae Guppy (not Linné), Quart. Jour. Geol. Soc. London, vol. 22, p. 293, 1866.

Locality: N 3.

Anadara (Scapharca) dariensis (Brown and Pilsbry)

Pl. 29 (15), fig. 26.

Arca dariensis Brown and Pilsbry, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 362, pl. 22, f. 10, 1911.

---

1) Dall: Proc. U. S. Nat. Mus., vol. 18, no. 1035, p. 34, 1895.

2) Sowerby: Quart. Jour. Geol. Soc. London, vol. 6, p. 47, 1850.

3) Olsson: Op. cit., vol. 9, no. 39, p. 177, 1922.

4) Brown and Pilsbry: Op. cit., vol. 63, p. 364, pl. 28, f. 10, 1911.

5) Anderson: Op. cit., vol. 18, no. 4, p. 152, 1929.

6) Dall: Bull. U. S. Nat. Mus., no. 90, p. 122, pl. 20, f. 11, 13, 1915.

Arca (*Scapharca*) *dariensis* OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 184, pl. 22, f. 10–13, 1922 ; MAURY, Bull. Amer. Pal., vol. 10, no. 42, p. 55, pl. 1, f. 5, 1925 ; ANDERSON, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 147, 1929.

Arca (*Diluvarca*) *dariensis* OLSSON, Bull. Amer. Pal., vol. 19, no. 68, p. 68, 1932.

Locality : O 5.

Anadara (*Scapharca*) *hindsi* (OLSSON)

Pl. 29 (15), fig. 27.

Arca hindsi OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 193, pl. 24, f. 7–9, 1922.

Locality : O 5.

A single left valve, measured 14.4 mm. in the maximum length, was collected from Loc. O 5. The specimen is much smaller than the typical form, and resembles somewhat *Arca lloydi* OLSSON[1] in general contour, but it has 26 instead of 29 strongly nodulated ribs.

Chama congregata CONRAD

Pl. 29 (15), fig. 29.

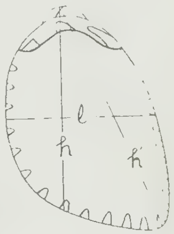
Chama congregata CONRAD, Amer. Jour. Sci., vol. 23, p. 341, 1833 ; DALL, Trans. Wagner Free Inst. Sci., vol. 3, pt. 6, p. 1400, 1903 ; MAURY, Bull. Amer. Pal., vol. 5, no. 29, p. 200, pl. 33, f. 8, 1917 ; OLSSON, Bull. Amer. Pal., vol. 9, no. 39, p. 218, pl. 28, f. 11, 1922.

Locality : N 3, O 5.

Corculum (*Trigoniocardia*) *heredium ohomachii* n. subsp.

Pl. 29 (15), fig. 23.

The specimens at hand partly agree with the figure and the description of *Cardium heredium* OLSSON[2]. They are sculptured anterior to the truncation with 13 or 14 instead of 12 or 13 ribs and with 9 or 10 instead of 7 or 8 ribs on the posterior truncation. The ribs on the anterior disk are ornamented with numerous pustules, which are arranged on the posterior half of the ribs. While in the type specimen of *Cardium heredium* OLSSON, the anterior set of ribs are smooth. In the sculpture, this subspecies somewhat resembles *Cardium hannai* OLSSON[3] from the Lower Zorritos formation of Peru, but is easily distinguished by its stronger posterior truncation.



Text fig. 1. Diagrammatic representation of *Corculum*, to illustrate the points where the linear measurements were taken.

Lacality : N 3, O 5.

Measurement :

	h	h'	l	Thickness
Holotype (Loc. N 3)	11.1 mm	12.7 mm	8.4 mm	4.7 mm (Left valve)
Specimen from Loc. O 5	9.3 mm	10.7 mm	7.2 mm	4.2 mm (Right valve)

---

[1] OLSSON : Op. cit., vol. 9, no. 39, p. 192, pl. 24, f. 10–12, 1922.

[2] OLSSON : Op. cit., vol. 9, no. 39, p. 227, pl. 27, f. 10, 1922.

[3] OLSSON : Op. cit., p. 99, pl. 8, f. 4, 9, 10, 11, 1932.

Callista maculata (Linné)

Venus maculata Linné, Syst. Nat., ed. 10, p. 686, 1758.

Macrocallista (*Chionella*) *maculata* Dall, Trans. Wagner Free Inst. Sci., vol. 3, pt. 6, p. 1256, 1903; Anderson, Proc. Calif. Acad. Sci., vol. 18, no. 4, p. 170, 1929.

Macrocallista maculata Brown and Pilsbry, Proc. Acad. Nat. Sci. Phila., vol. 63, p. 370, 1911; Olsson, Bull. Amer. Pal., vol. 9, no. 39, p. 234, pl. 31, f. 6, 7, 1922; Maury, Bull. Amer. Pal., vol. 10, no. 42, p. 279, pl. 25, f. 1, 4, 5, 1925.

Locality: N 3.

Aloidis sancti-dominici (Maury)

Pl. 29 (15), fig. 28.

Corbula (*Aloidis*) *vieta* Maury (not Guppy), Bull. Amer. Pal., vol. 5, no. 29, p. 231, pl. 39, f. 13, 1917; Olsson, Bull. Amer. Pal., vol. 9, no. 39, p. 266, pl. 28, f. 15, 16, 1922.

Corbula (*Aloidis*) *sancti-dominici* Maury, Bull. Amer. Pal., vol. 10, no. 42, p. 98, pl. 19, f. 2, 1925.

Locality: N 3, O 5.

Aloidis hexacyma (Brown and Pilsbry)

Pl. 29 (15), fig. 24.

Corbula hexacyma Brown and Pilsbry, Proc, Acad. Nat. Sci. Phila., vol. 64, p. 518, pl. 26, f. 4, 1912.

Corbula (*Cuneocorbula*) *hexacyma* Olsson, Bull. Amer. Pal., vol. 9, no. 39, p. 269, pl. 21, f. 12, 13, 1922.

Locality: N 3, P 2.

Colombia 共和國 Chocó 州 Cucurrupi 附近産中新世貝化石 （摘要）

大炊御門經輝

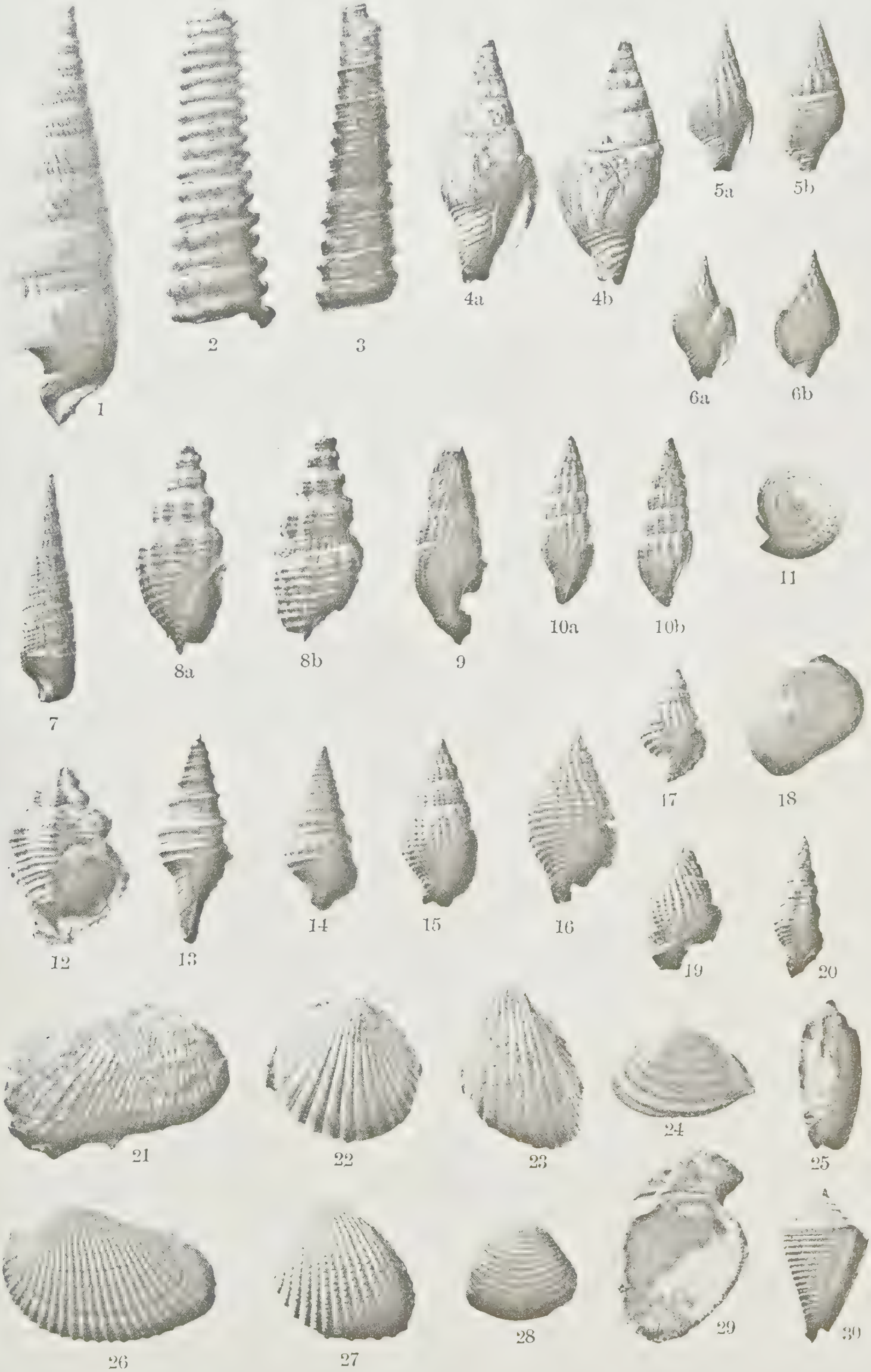
此處に記載した貝化石は大町四郎學士が昭和 13 年 Colombia, Cucurrupi 附近で採集したものである。産地は 4 ケ所，略同一層準にある。化石層は可成柔い灰色頁岩中にある。此化石層は Magdalena 河の下流に發達する Tuberá 群層の horizon P に對比され，亦 Panama, Costa Rica の Gatun 層に比較されるであらう。

Explanation of Plate 29 (15)

Fig. 1. *Terebra* (*Paraterebra*) *gabbi cucurrupiensis* n. subsp. (Holotype) ×1 Loc. P 2.
Fig. 2. *Turritella altilira* Conrad ×1 Loc. N 3.
Fig. 3. *Turritella altilira chiriquiensis* Olsson ×1 Loc. O 5.
Figs. 4a, b. *Pyrene* (*Strombina*) *ohomachii* n. sp. (Holotype) ×1.5 Loc. O 5.
Figs. 5a, b. *Pyrene* (*Strombina*) *tumbezia olssoni* n. subsp. (Holotype) ×3 Loc. O 5.
Figs. 6a, b. *Pyrene* (*Strombina*) *chiriquiensis* (Olsson) ×2 Loc. O 5.

Fig. 7. *Terebra (Strioterebrum) gatunensis* TOULA ×1 Loc. O 5.
Figs. 8a, b. *Glyphostoma andersoni* n. sp. (Holotype) ×1.5 Loc. O 5.
Fig. 9. "*Drillia*" cf. *musacina* OLSSON ×1.5 Loc. O 5.
Figs. 10a, b. *Vexillum (Uromitra) cucurrupiensis* n. sp. (Holotype) ×1.5 Loc. O 5.
Fig. 11. *Architectonica granulata* (LAMARCK) ×1 Loc. P 2.
Fig. 12. *Cantharus dalli* (BROWN and PILSBRY) ×1 Loc. O 5.
Fig. 13. *Turris (Polystira) albida* (PERRY) ×1 Loc. P 2.
Fig. 14. *Turris (Gemmula) vaningeni* (BROWN and PILSBRY) ×2 Loc. O 5.
Fig. 15. *Phos (Antillophos) gatunensis* TOULA ×1 Loc. O 5.
Fig. 16. *Phos (Antillophos) mexicanus* BOSE ×1 Loc. P 2.
Fig. 17. *Cancellaria (Cancellaria) cossmanni* OLSSON ×1 Loc. O 5.
Fig. 18. *Natica (Naticarius) guppyana* TOULA ×1.5 Loc. O 5.
Fig. 19. *Cancellaria (Cancellaria) dariena* TOULA ×1 Loc. O 5.
Fig. 20. "*Drillia*" *aquanica* OLSSON ×2 Loc. O 5.
Fig. 21. *Arca occidentalis* PHILIPPI ×1 Loc. N 3.
Fig. 22. *Glycymeris lamyi trilobicosta* PILSBRY and BROWN ×1.5 Loc. N 3.
Fig. 23. *Corculum (Trigoniocardia) heredium ohomachii* n. subsp. (Holotype) ×2 Loc. N 3.
Fig. 24. *Aloidis hexacyma* (BROWN and PILSBRY) ×1.5 Loc. P 2.
Fig. 25. *Oliva sayana immortus* PILSBRY and BROWN ×1.5 Loc. P 2.
Fig. 26. *Anadara (Scapharca) dariensis* (BROWN and PILSBRY) ×1 Loc. O 5.
Fig. 27. *Anadara (Scapharca) hindsi* (OLSSON) ×1.5 Loc. O 5.
Fig. 28. *Aloidis sancti-dominici* (MAURY) ×2 Loc. N 3.
Fig. 29. *Chama congregata* CONRAD ×1 Loc. N 3.
Fig. 30. *Conus (Leptoconus) multiliratus gaza* JOHNSON and PILSBRY ×1 Loc. O 5.

地質學雜誌　第 46 卷　第 29 (15) 圖版 (大炊御門)　　Vol. XLVI, Pl. 29 (15)



Ueki photo.

日本古生物學會記事

Proceedings of the Palaeontological Society of Japan

昭和 14 年 10 月 7 日　日本古生物學會第 16 回例會を北海道帝國大學理學部地質學鑛物學教室に於て開催す(參會者 23 名)。講演者並に講演題目次の如し。

Notes on *Hexaphyllia* and *Heterophyllia.*	Hisakatsu YABE and Tosio SUGIYAMA
On Mode of Occurrence of *Glycymeris matsumoriensis* NOMURA and HATAI in the Nanakita District, Rikuzen (代讀)	Manzirô NAKAMURA
A Preliminary Note on the Fossils from Waga-gun, Akita Prefecture, Northeast Honsyû, Japan (代讀)	Kotora M. HATAI and Syôzô NISIYAMA
山西省臨汾附近の三門系化石 (代讀)	大塚彌之助
Supplimentary Note on the Agnostida (代讀)	Teiichi KOBAYASHI
日本產化石甲殼類 (追加)	長尾　巧
On the Occurrence of *Taxodioxylon albertense* (PENHALLOW) SHIMAKURA from the Senonian of Karahuto (Japanese Saghalien) (代讀)	Misaburô SHIMAKURA
本邦產第三紀植物の 2, 3 に就いて	大石三郎・藤岡一男
フランクフルトの上部鮮新期植物化石の展覽	矢部長克

昭和 14 年 12 月 16 日　日本古生物學會第 17 回例會を京都帝國大學理學部地質學鑛物學教室に於て開催す(參會者 25 名)。講演者並に講演題目次の如し。

志摩迫間洪積統有孔蟲　特に其の珍しき新屬 *Oolitella* 及び *Geminospira*	槇山次郎・中川　保
南洋パラオ群島カヤンガル島產海膽類 (代讀)	西山省三
Miocene Mollusca from the Neibourhood of Cucurrupi, Department of Chocó, Colombia	Tuneteru OINOMIKADO
Polydesmia に就いて (代讀)	小林貞一
Turridae に就いて 2, 3 の觀察	槇山次郎
滿洲國錦州省羊山より發見されたる中生代恐龍の足跡化石	矢部長克 稻井　豐 鹿間時夫
神戶產植物化石のあるものに就いて	前島俊郎
領石植物の 2, 3 に就いて	小畠信夫
日本に遺體として發見さるゝ支那現世植物に就いて	三木　茂
Two New Fossil Species of *Quercus* and *Glyptostrobus* Cones from Tyôsen	Seidô ENDÔ and Shôgo YAMAMOTO

昭和 14 年 7 月 1 日以降 11 月 30 日迄の會員移動次の如し。

入會者　SCHENCH, H. G.

退會者　清水三郎 (死亡)　中村正義 (死亡)　前田喜夫 (死亡)

日本古生物學會規則

1. 本會ハ日本地質學會ノ部會ニシテ日本古生物學會ト稱ス
2. 本會ハ古生物學及ビ之レニ關スル諸學科ノ進步ヲ助ケ斯學ノ普及ヲ圖ルヲ以テ目的トス
3. 本會ハ第2條ノ目的ヲ達スルタメニ總會及講演會ヲ開ク
4. 本會ノ紀事及ビ會員ノ寄稿ハ地質學雜誌ニ揭載シ，其ノ別刷ヲ日本地質學會々員ニアラザル本會々員ニ配布ス
5. 本會ノ會費ハ年額3圓トシ，日本地質學會々員ハ年額1圓トス．但シ一時ニ金100圓以上ヲ寄附セル者ヲ賛助會員ニ推ス
6. 本會ニ次ノ役員ヲ置ク

會長	1名
評議員	數名

7 役員ノ任期ヲ1年トシ會員中ヨリ總會ニ於テ選擧ス

日本古生物學會役員

會長　大村一藏

評議員　伊木常誠　井上禧之助　遠藤隆次　*大炊御門經輝
*大塚彌之助　大村一藏　加藤武夫　金原信泰　木村六郎
*小林貞一　立岩巖　*德永重康　中村新太郎　*長尾巧
*早坂一郎　*藤本治義　村上飯藏　山根新次　*矢部長克
渡邊久吉　(* 常務委員)

事務所——編輯所
東京帝國大學理學部地質學敎室
日本古生物學會
(振替口座東京第84780番)

Constitution of the Palaeontological Society of Japan.

Article 1. The Society shall be known as the Palaeontological Society of Japan. It forms a section of the Geological Society of Japan.

Article 2. The object of the Society is the promotion of palaeontology and related sciences.

Article 3. This Society to execute the scheme outlined under Article 2, shall hold annual meetings and discussions.

Article 4. Proceedings of the Society and articles for publication shall be published through the Journal of the Geological Society of Japan. Separates and circulations will be sent to members of the Palaeontological Society who are not members of the Geological Society of Japan.

Article 5. The annual dues of this Society is two dollars for the foreign members of the Society.

Article 6. This Society shall hold the following executives. President one person, Councillors several persons.

Article 7. The President and Councillors shall be elected annually. The President and Councillors shall be elected from the Society body by vote of its members. All elections shall be ballot.

President Ichizô ÔMURA

Councillors Ryuji ENDÔ
Haruyosi HUZIMOTO*
Kinosuke INOUYE
Takeo KATÔ
Teiichi KOBAYASHI*
Takumi NAGAO*
Tuneteru OINOMIKADO*
Yanosuke OTUKA*
Shigeyasu TOKUNAGA*
Hisakatsu YABE*
Ichirô HAYASAKA
Tsunenaka IKI
Nobuyasu KANEHARA
Rokurô KIMURA
Hanzô MURAKAMI
Shintarô NAKAMURA
Ichizô ÔMURA
Iwao TATEIWA
Kyukichi WATANABE
Shinji YAMANE*

(* Executive committee)

All communications relating to this Journal should be addressed to the
PALAEONTOLOGICAL SOCIETY OF JAPAN
Geological Institute, Faculty of Science, Imperial University of Tokyo, Japan